

TARIFF ACTION MEMO

Date: April 20, 2023

Date Filed: March 15, 2023

Statutory End Date: May 1, 2023

File No: TA415-121 and TA537-8

Name of Utility: Chugach Electric Association, Inc. (Chugach)

Subject: Generation and Transmission (G&T) Loss Factor Update

Recommendations

Staff recommends the Commission:

1. Approve Tariff Sheet Nos. 122 and 123, filed March 15, 2023, by Chugach with TA415-121, as shown on the attached side-by-side tariff sheets (BA-1). The effective date of the tariff sheets should be May 1, 2023.
2. Approve Tariff Sheet Nos. 103.4 and 103.5, filed March 15, 2023, by Chugach with TA537-8, as shown on the attached side-by-side tariff sheets (BA-2). The effective date of the tariff sheets should be May 1, 2023.

Please see attached Staff Memorandum supporting the above recommendations.

Signed: Becki Alvey
Becki Alvey

Title: Utility Tariff Analyst

Commission decision regarding these recommendations:

	<u>Date (if different from 4/20/2023)</u>	<u>I Concur</u>	<u>I Do Not Concur</u>	<u>I Will Write A Dissenting Statement*</u>
Kurber		<u>KKZ</u>		
Doyle		<u>BD</u> BD		
Pickett		<u>BP</u> BP		
Sullivan		<u>BP</u> BP for DS		
Wilson	4/21/23	<u>JWW</u> JWW		

* If this column is initialed, Staff will contact the Commissioner for the statement; otherwise, the dissent will simply be noted at the close of the By Direction letter or order.

MEMORANDUM

To: Keith Kurber II, Chairman
Robert A. Doyle
Robert M. Pickett
Daniel A. Sullivan
Janis W. Wilson

Date: April 20, 2023

From: Becki Alvey, Utility Tariff Analyst

Subject: G&T Loss Factor Update

Recommendations

Staff recommends the Commission:

1. Approve Tariff Sheet Nos. 122 and 123, filed March 15, 2023, by Chugach with TA415-121, as shown on the attached side-by-side tariff sheets (BA-1). The effective date of the tariff sheets should be May 1, 2023.
2. Approve Tariff Sheet Nos. 103.4 and 103.5, filed March 15, 2023, by Chugach with TA537-8, as shown on the attached side-by-side tariff sheets (BA-2). The effective date of the tariff sheets should be May 1, 2023.

Background

Chugach has historically served both retail and large wholesale customers. While the retail customers typically make use of Chugach's G&T and distribution systems, the wholesale customers only utilize Chugach's G&T system. Therefore, Chugach's aggregate line loss across its transmission and distribution systems must be segregated to properly allocate the losses to the appropriate system users.

The G&T Line Loss Factor is used for the allocation of system costs between Chugach's G&T system and its distribution system. The G&T Line Loss Factor impacts all customers of Chugach, as it is used in the determination of base energy rates, the Cost of Power Adjustment (COPA) surcharge, and losses associated with transmission wheeling transactions.

The Commission instituted an investigation of Chugach's G&T line loss calculation methodology with Order No. U-99-106(1).¹ In addition to Chugach, Matanuska Electric Association, Inc. (MEA); Homer Electric Association, Inc. (HEA); Alaska Electric Generation & Transmission Cooperative, Inc.; and the Commission's Public Advocacy Section were designated as parties to the proceeding. With concurrence of the Commission,² the parties to Docket No. U-99-106 hired an independent consultant (Black

¹ Order No. U-99-106(1), *Order Suspending Operating of Tariff Revision; Instituting Investigation; Naming Parties; and Requiring Filing*, issued September 16, 1999.

² See Order No. U-99-106(4), *Order Affirming Oral Ruling Vacating Public Hearing, Granting Motions to Accept Late Filing of Reports; Establishing Filing Date, and Re-Scheduling Public Hearing*, issued July 12, 2000.

& Veatch) to study Chugach's G&T system and recommend a methodology for calculating Chugach's G&T system line losses. The Commission accepted the Black & Veatch Study (B&V Study) and required the parties to seek stipulation regarding the report recommendations.³

In Order No. U-99-106(12), the Commission accepted a stipulation between the parties, setting out standard rules, procedures, discovery, and methodology for the calculation of the G&T Line Loss Factor (Stipulation).⁴ The Stipulation sets out the terms and conditions for the filing of annual updates.⁵

TA402-8, Chugach's update to the G&T Line Loss Factor using 2014 operating results, was filed on March 15, 2015, as MEA was disconnecting from the Chugach system and led to questions about whether or not the existing G&T line loss factor methodology was appropriate going forward.⁶ Ultimately, the Commission approved the tariff sheets filed with TA402-8 and required Chugach to file a report on a planned September 17, 2015, meeting between Chugach and its affected shareholders. Chugach filed the required report on September 24, 2015, summarizing the four months of data to be reviewed at the September 17, 2015, working group meeting, and identifying the attendees, major points of discussion, and conclusions reached by the working group.⁷ An additional meeting was held on November 19, 2015, to discuss updated G&T Line Loss factors.⁸ At that meeting, an updated calculation was provided for comment and attendees discussed removing losses supplied by others; moving the interchange point from the Douglas Substation to the Teeland Substation; and adjusting for generation step-up transformer losses and adjusting for measurement points taken on the low side of transformers.⁹ A final meeting was held on February 18, 2016, which Chugach stated was very productive and produced no significant findings or discernable changes in the results.¹⁰

In Order No. U-18-102(44)/U-19-020(39)/U-19-021(39), the Commission conditionally approved the acquisition of most of the Municipality of Anchorage d/b/a Municipal Light

³ See Order No. U-99-106(6), *Order Accepting Chugach Generation and Transmission Line Loss Study, Establishing Filing Date, and Scheduling Workshop*, issued July 2, 2002.

⁴ See Order No. U-99-106(12), *Order Accepting Stipulation and Resolving Remaining Disputed Issues, Subject to Conditions; and Requiring Filing*, issued September 18, 2003 (Stipulation attached as Appendix). The Parties to the Stipulation were Chugach, MEA, HEA, and Alaska Electric Generation & Transmission Cooperative, Inc. (AEG&T) now known as Alaska Electric & Energy Cooperative, Inc. (AEEC). See Order No. U-01-104(1), issued June 19, 2002, transferring AEG&T to AEEC.

⁵ These annual filings are due "in approximately March of each year". See Stipulation, at paragraph 7.

⁶ See tariff advice letter for TA402-8, received March 16, 2015.

⁷ See Letter Order No. L1500231, issued April 27, 2015. Attendees included representatives from Chugach, MEA, Municipal Light and Power (ML&P), and the City of Seward (SES). Invitations were sent to the Department of Law Regulatory Affairs and Public Advocacy section and Golden Valley Electric Association, Inc. (GVEA) (See supplemental filing to TA402-8, received September 24, 2015, at page 1.)

⁸ See supplemental filing for TA402-8, received December 4, 2015. Attendees at this meeting were representatives from Chugach, GVEA, MEA, HEA, ML&P, and SES.

⁹ *Id.*, at page 2.

¹⁰ See tariff advice letter for TA454-8, at page 2.

and Power's (ML&P) assets by Chugach. The service area formerly served by ML&P is known as the North District.¹¹

Filing

Chugach now submits TA415-121 and TA537-8, updating the G&T Line Loss Factor based upon the 2022 system configuration and operating results. Chugach filed Tariff Sheet Nos. 122 and 123 with TA415-121 and Tariff Sheet Nos. 103.4 and 103.5 with TA537-8. Chugach filed two attachments supporting the calculations of the G&T Line Loss Factor.

Notice

The Commission issued a public notice for TA415-121 and TA537-8 on March 16, 2023, with comments requested by April 17, 2023. No comments were received.

Analysis/Discussion

Generation and Transmission Line Loss

Typically, line loss is part of the overall costs within a revenue requirement study (RRS). An RRS can only be filed after the end of the test year. Once the RRS is filed with the Commission, the Commission has up to 450 days (approximately 15 months) to rule on the filing.¹² There is at least a two or three year lag before rates would change to reflect a change in line loss. Due to Chugach's historically large wholesale power customers and the complexity of Chugach's system, a different approach for Chugach's line loss calculations was established by the Stipulation accepted in Order No. U-99-102(12). A specific methodology was adopted and annual true-ups were required, avoiding the regulatory lag typical with most utility line loss calculations.¹³

In reviewing Chugach's annual G&T Line Loss filing, Staff must verify that the proposed calculations were accurately prepared using the methodology approved in the B&V Study, and that Chugach followed the proper notice and discovery procedures approved in the Stipulation. Staff must also verify that the tariff sheets accurately reflect the proposed revisions.

Cost Responsibility

An increase in the G&T Line Loss Factor results in a shift of the annual cost responsibility from distribution to G&T. There is however, no impact on the total revenues. Changes in the G&T Line Loss Factor directly impact the allocation of costs among customer classes at the bulk power (G&T) level. Chugach states:

[T]he updated loss factor will decrease total G&T cost responsibility to Seward Electric System by approximately \$1,060 and Chugach retail will increase by approximately \$1,060. In addition, there is no rate impact on third party transmission customers since Chugach is not changing its

¹¹ See Certificate No. 121 Tariff Sheet No. 8, effective December 23, 2020.

¹² AS 42.05.175(c)

¹³ See Order No. U-99-106(12), pages 2-3.

transmission wheeling rates. The update has no impact on Chugach's system revenue.¹⁴

Table 1 is a summary of the previous G&T Line Loss Factors for Chugach measured at generation.¹⁵

TABLE 1

Summary of Previous G&T Loss Factors			
Test Year	Percent	Test Year	Percent
2022	1.687%	2017	2.207%
2021	2.650%	2016	2.810%
2020	2.235%	2015	2.414%
2019	2.677%	2014	2.312%
2018	2.589%	2013	2.486%

Note: Measured at generation

Notice Procedure

Chugach provided preliminary calculations to HEA, MEA, and the Attorney General's office (AG) for review and comment. Chugach also provided preliminary calculations and work papers to GVEA and SES. A meeting was held on March 1, 2023, to discuss the updated calculations and 2022 test year results. Chugach states that, based on the discussions, no changes to the calculation were required.¹⁶

Calculation

Staff reviewed all supporting documentation and verified that the G&T Line Loss Factor calculations were developed according to the stipulation approved with U-99-106(12).¹⁷

As shown in the Table 2, the proposed G&T Line Loss factor filed with TA415-121 and TA537-8 decreased 0.963% and the adjusted distribution losses increased 2,213.1 MWh from the G&T Line Loss factors approved with TA399-121 and TA521-8, the most recently approved G&T Line Loss factor revision. The calculations were developed using actual kWh generation, purchases, and sales for 2022.¹⁸

¹⁴ See tariff advice letters for TA415-121 and TA537-8, at page 1.

¹⁵ Staff notes that Chugach calculates its G&T Line Loss factor at generation and at delivery. The difference between the factors is based on whether losses are being calculated using measurement of power inputs (at generation) or using the measurement of power delivery from the transmission system (at delivery). The two factors would allow the calculation of the same losses, regardless of whether inputs (at generation) or outputs (at delivery) were being used in the calculation.

¹⁶ See tariff advice letters for TA415-121 and TA537-8, at page 2.

¹⁷ See Order No. U-99-106(12), at page 7 of the appendix.

¹⁸ See tariff advice letter for TA537-8, at Attachments I and II.

Table 2

Line	Description	Current TA521-8 Test Year 2021	Proposed TA537-8 Test Year 2022	Difference
		2021	2022	
1	GENERATION & TRANSMISSION LOSSES			
2	Total Energy Entering System	2,592,282	2,949,015	356,733
3	Total Energy Leaving System	<u>2,532,992</u>	<u>2,911,209</u>	<u>378,217</u>
4	Gross Energy Losses	59,290.6	37,806.4	(21,484)
5	Add Line and Service Losses			-
6	Less Transformer Losses	<u>5,934.5</u>	<u>6,339.1</u>	<u>405</u>
7	Total Energy Losses	53,356.1	31,467.3	(21,889)
8	Add 1/2 House Power	<u>3,478.2</u>	<u>3,236.3</u>	<u>(242)</u>
9	Adjusted Generation & Transmission Losses	<u>56,834.3</u>	<u>34,703.6</u>	<u>(22,131)</u>
10	Generation & Transmission Deliveries	2,087,854	2,022,414	(65,440)
11	Percentage at Delivery (line 9 / line 10)	2.722%	1.716%	-1.006%
12	Percentage at Generation (line 9 / (line 9 + line 10))	2.650%	1.687%	-0.963%
13	RETAIL DISTRIBUTION LOSSES			
14	Net Retail Receipts at Transmission	2,021,269	1,955,278	(65,991)
15	Retail Sales at Delivery	<u>1,922,934</u>	<u>1,902,625</u>	<u>(20,309)</u>
16	Gross Losses	98,335.3	52,653.1	(45,682)
17	Adjust for House Power	<u>3,478</u>	<u>3,236</u>	<u>(242)</u>
18	Adjusted Retail Distribution Losses	<u>101,814</u>	<u>55,889</u>	<u>(45,924)</u>
19	Percentage at Delivery (line 18 / line 15)	5.295%	2.937%	-2.357%
20	Percentage at Transmission Substation (line 18 / line 14)	5.037%	2.858%	-2.179%

Bradley Lake Project Management Committee

With TA454-8, Chugach stated that “Chugach has continued to reflect the decision by the Bradley Lake Project Management Committee for reimbursement of non-HEA Bradley Lake losses through Bradley Lake generation.” Additionally, Chugach stated that if the decision to calculate losses changes from Quartz Creek to Soldotna, Chugach’s G&T loss factor would increase. Depending on timing and the number of months remaining until the next loss factor update, Chugach may update the loss factor. By design, the update of the loss factor on an annual basis allows Chugach to routinely incorporate changes in system operations with minimal lag in the process.¹⁹ In its tariff advice letters for TA415-121 and TA537-8, Chugach stated consistent with prior year calculations, losses from Bradley Lake to Quartz Creek are not included in Chugach’s loss factor calculation.²⁰

Tariff Sheets

Staff reviewed Tariff Sheet Nos. 122 and 123 with TA415-121 and Tariff Sheet Nos. 103.4 and 103.5 with TA537-8. Staff verified that the proposed loss factor was calculated

¹⁹ See TR1801660, received March 30, 2018.

²⁰ See tariff advice letter for TA415-121 and TA537-8, at page 2.

accurately using Chugach's approved methodology, the proper support was filed, and the tariff sheets are correct.

Conclusion

With TA415-121 and TA537-8, Chugach requests approval of its annual G&T Line Loss Factor for the period beginning May 1, 2023. Based on the discussion above, Staff recommends the Commission:

1. Approve Tariff Sheet Nos. 122 and 123, filed March 15, 2023, by Chugach with TA415-121. The effective date of the tariff sheets should be May 1, 2023.
2. Approve Tariff Sheet Nos. 103.4 and 103.5, filed March 15, 2023, by Chugach with TA537-8. The effective date of the tariff sheets should be May 1, 2023.

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RCA NO.: 121 1st Revision Sheet No. 122
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 Original Sheet No. 122



Chugach Electric Association, Inc.

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CALCULATION OF CHUGACH G&T LOSSES
2021 Test Year

Description	Q1-21	Q2-21	Q3-21	Q4-21	Total
Energy Entering System					
Beluga Power Plant	3,567.6	458.4	743.8	1,683.0	6,452.8
IGT Power Plant	0.0	0.0	0.0	0.0	0.0
Fire Island Wind (IGT Bkr 532)	12,984.3	12,516.0	8,578.2	11,503.0	45,581.5
Southcentral Power Project	270,102.4	219,101.2	271,950.2	302,203.5	1,063,357.3
Plant 1	1,633.3	1,327.0	3,464.6	3,373.1	9,798.0
Plant 2	1,505.2	440.5	1,995.2	2,795.9	6,736.8
Plant 2A	202,243.6	203,282.8	166,594.5	211,841.1	783,962.0
Quartz Creek Substation	89,785.4	87,881.1	87,861.4	79,498.2	345,026.1
Teeland Substation	52,385.7	32,758.7	15,338.3	23,824.1	124,306.8
Plant 2 230 Yard	22,993.1	22,917.1	21,472.9	21,556.0	88,939.1
University Substation Bkr 152	0.0	0.0	0.0	0.0	0.0
Douglas Substation	0.0	0.0	0.0	0.0	0.0
Cooper Lake Power Plant	11,987.8	15,830.6	7,273.5	2,566.5	37,658.3
Eklutna Hydro Electric Power Plant	24,745.0	25,372.8	9,919.6	20,426.2	80,463.6
Total Energy Entering System	693,933.5	621,886.1	595,192.1	681,270.6	2,592,282.3
Energy Leaving System					
Quartz Creek Substation	0.0	0.4	7.1	7.9	15.3
Daves Creek Substation	14,925.4	14,383.2	14,778.4	15,535.1	59,622.1
Douglas Substation	66,337.7	63,045.4	29,011.4	39,603.8	197,998.3
Teeland Substation	46,557.6	50,279.7	39,836.4	36,848.5	173,522.2
Plant 2 230 Yard	1,011.0	28.3	193.2	83.9	1,316.4
University Substation Bkr 152	29.1	368.6	385.1	0.0	782.8
Power Plant Station Service Totals	17,054.6	17,205.1	17,662.7	19,587.2	71,509.5
South - Distribution Substation Deliveries	298,369.7	247,280.0	250,559.2	305,148.9	1,101,357.9
North - Distribution Substation Deliveries	236,460.4	215,347.2	225,697.8	249,361.9	926,867.3
Total Energy Leaving System	680,745.5	607,937.8	578,131.3	666,177.2	2,532,991.7
Gross Energy Losses	13,188.0	13,948.4	17,060.8	15,093.4	59,290.6
Less Transformer Losses	1,483.6	1,483.6	1,483.6	1,483.6	5,934.5
Net G&T Losses	11,704.4	12,464.7	15,577.2	13,609.8	53,356.1

Tariff Advice No.: 399-121

Effective: May 1, 2022

Chugach Electric Association, Inc.
 P.O. Box 196300 Anchorage, Alaska 99519-6300

RCA NO.: 121 2nd Revision Sheet No. 122
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 1st Revision Sheet No. 122



Chugach Electric Association, Inc.



CALCULATION OF CHUGACH G&T LOSSES
2022 Test Year

Description	Q1-22	Q2-22	Q3-22	Q4-22	Total
Energy Entering System					
Beluga Power Plant	4,697.5	708.7	1,197.4	727.9	7,331.4
IGT Power Plant	0.0	0.0	0.0	0.0	0.0
Fire Island Wind (IGT Bkr 532)	15,915.2	8,404.4	13,262.1	16,086.9	53,668.6
Southcentral Power Project	330,831.4	288,032.7	230,023.1	335,680.3	1,184,567.5
Plant 1	5,354.8	6,831.2	1,221.6	6,698.9	20,106.4
Plant 2	26,820.8	12,805.0	897.8	1,266.7	41,790.3
Plant 2A	236,707.3	210,928.8	206,345.8	210,389.9	864,371.8
Quartz Creek Substation	46,529.3	41,592.1	117,474.3	106,829.8	312,425.4
Teeland Substation	74,645.5	55,412.1	47,251.4	58,267.3	235,576.2
Plant 2 230 Yard	5,077.4	2,203.6	10,946.2	1,102.3	19,329.5
Eklutna Substation	1,518.4	616.0	0.0	3,010.9	5,145.3 D,N
International Substation	0.0	0.0	0.0	0.0	0.0 D,N
Cooper Lake Power Plant	5,976.2	7,441.2	7,888.3	14,030.8	35,336.5
Eklutna Hydro Electric Power Plant	38,325.8	34,438.4	56,671.7	39,930.2	169,366.2
Total Energy Entering System	792,399.7	669,414.2	693,179.6	794,021.7	2,949,015.3
Energy Leaving System					
Quartz Creek Substation	0.0	0.0	0.0	0.0	0.0
Daves Creek Substation	15,329.4	14,991.4	15,154.2	14,851.6	60,326.6
Eklutna Substation	39,355.5	34,623.3	56,125.7	42,413.3	172,517.8 D,N
Teeland Substation	181,250.8	135,624.1	115,606.4	162,177.2	594,658.5
Plant 2 230 Yard	7,045.4	4,796.7	20,122.4	13,368.4	45,332.8
International Substation	80.1	78.2	98.1	105.3	361.8 D,N
Power Plant Station Service Totals	19,395.7	18,385.6	17,998.5	20,481.3	76,261.0
South - Distribution Substation Deliveries	290,974.9	245,546.4	249,133.8	296,665.0	1,082,320.0
North - Distribution Substation Deliveries	230,549.5	208,759.9	207,889.5	232,231.3	879,430.3
Total Energy Leaving System	783,981.3	662,805.5	682,128.7	782,293.4	2,911,208.9
Gross Energy Losses	8,418.4	6,608.7	11,050.9	11,728.3	37,806.3
Less Transformer Losses	1,584.8	1,584.8	1,584.8	1,584.8	6,339.1
Net G&T Losses	6,833.6	5,023.9	9,466.2	10,143.6	31,467.2

Tariff Advice No. 415-121

Issued by:

Effective: May 1, 2023

Chugach Electric Association, Inc.
 P.O. Box 196300 Anchorage, Alaska 99519-6300

RCA NO.: 121 1st Revision Sheet No. 123
 Canceling
 Original Sheet No. 123



Chugach Electric Association, Inc.

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CALCULATION OF CHUGACH G&T LOSSES
2021 Test Year ¹

Description	Q1-21	Q2-21	Q3-21	Q4-21	Total
Chugach Retail Distribution Losses					
Retail Receipts at Transmission Substation	534,830.2	462,627.2	476,257.0	554,510.8	2,028,225.2
Less: Chugach House Power	2,042.5	1,493.9	1,404.1	2,015.8	6,956.3
Net Receipts	532,787.7	461,133.3	474,852.9	552,495.0	2,021,268.9
Retail Sales at Delivery	513,997.5	442,128.8	443,024.9	523,782.3	1,922,933.6
Losses	18,790.2	19,004.5	31,828.0	28,712.6	98,335.3
Add: 1/2 House Power	1,021.2	746.9	702.0	1,007.9	3,478.2
Adj. Retail Dist. Losses	19,811.4	19,751.4	32,530.1	29,720.5	101,813.4
At Delivery	3.854%	4.467%	7.343%	5.674%	5.295%
At Transmission Substation	3.718%	4.283%	6.851%	5.379%	5.037%
Adjustment of G&T Losses for House Power					
G&T Deliveries	549,755.6	477,010.4	491,031.7	570,056.1	2,087,853.8
Net G&T Losses	11,704.4	12,464.7	15,577.2	13,609.8	53,356.1
Add: 1/2 House Power	1,021.2	746.9	702.0	1,007.9	3,478.2
Adjusted G&T Losses	12,725.6	13,211.7	16,279.2	14,617.7	56,834.3
At Delivery	2.315%	2.770%	3.315%	2.564%	2.722%
At Generation	2.262%	2.695%	3.209%	2.500%	2.650%

¹ G&T loss factor effective for the allocation of actual costs beginning January 1, 2022.

Tariff Advice No.: 399-121

Chugach Electric Association, Inc.
 P.O. Box 196300 Anchorage, Alaska 99519-6300

Effective: May 1, 2022

RCA NO.: 121 2nd Revision Sheet No. 123
 Canceling
 1st Revision Sheet No. 123



Chugach Electric Association, Inc.



CALCULATION OF CHUGACH G&T LOSSES
2022 Test Year ¹

Description	Q1-22	Q2-22	Q3-22	Q4-22	Total
Chugach Retail Distribution Losses					
Retail Receipts at Transmission Substation	521,524.4	454,306.3	457,023.3	528,896.3	1,961,750.3
Less: Chugach House Power	1,817.3	1,429.6	1,359.8	1,865.9	6,472.6
Net Receipts	519,707.1	452,876.7	455,663.5	527,030.4	1,955,277.7
Retail Sales at Delivery ¹	505,991.2	440,840.7	442,748.6	513,044.1	1,902,624.6
Losses	13,716.0	12,036.0	12,915.0	13,986.2	52,653.1
Add: 1/2 House Power	908.6	714.8	679.9	933.0	3,236.3
Adj. Retail Dist. Losses	14,624.6	12,750.8	13,594.8	14,919.2	55,889.5
At Delivery	2.890%	2.892%	3.071%	2.908%	2.937%
At Transmission Substation	2.814%	2.816%	2.984%	2.831%	2.858%
Adjustment of G&T Losses for House Power					
G&T Deliveries	536,937.8	469,385.9	472,246.7	543,843.7	2,022,414.2
Net G&T Losses	6,833.6	5,023.9	9,466.2	10,143.6	31,467.2
Add: 1/2 House Power	908.6	714.8	679.9	933.0	3,236.3
Adjusted G&T Losses	7,742.2	5,738.7	10,146.0	11,076.5	34,703.6
At Delivery	1.442%	1.223%	2.148%	2.037%	1.716%
At Generation	1.421%	1.208%	2.103%	1.996%	1.687%

¹ G&T loss factor effective for the allocation of actual costs beginning January 1, 2023.

Tariff Advice No. 415-121

Issued by:
 Chugach Electric Association, Inc.
 P.O. Box 196300 Anchorage, Alaska 99519-6300

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RCA NO.: 8 19th Revision Sheet No. 103.4

Canceling

18th Revision Sheet No. 103.4

Chugach Electric Association, Inc.

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 STATE OF ALASKA
 REGULATORY COMMISSION OF ALASKA

CALCULATION OF CHUGACH G&T LOSSES
2021 Test Year

Description	Q1-21	Q2-21	Q3-21	Q4-21	Total
Energy Entering System					
Beluga Power Plant	3,567.6	458.4	743.8	1,683.0	6,452.8
IGT Power Plant	0.0	0.0	0.0	0.0	0.0
Fire Island Wind (IGT Bkr 532)	12,984.3	12,516.0	8,578.2	11,503.0	45,581.5
Southcentral Power Project	270,102.4	219,101.2	271,950.2	302,203.5	1,063,357.3
Plant 1	1,633.3	1,327.0	3,464.6	3,373.1	9,798.0
Plant 2	1,505.2	440.5	1,995.2	2,795.9	6,736.8
Plant 2A	202,243.6	203,282.8	166,594.5	211,841.1	783,962.0
Quartz Creek Substation	89,785.4	87,881.1	87,861.4	79,498.2	345,026.1
Teeland Substation	52,385.7	32,758.7	15,338.3	23,824.1	124,306.8
Plant 2 230 Yard	22,993.1	22,917.1	21,472.9	21,556.0	88,939.1
University Substation Bkr 152	0.0	0.0	0.0	0.0	0.0
Douglas Substation	0.0	0.0	0.0	0.0	0.0
Cooper Lake Power Plant	11,987.8	15,830.6	7,273.5	2,566.5	37,658.3
Eklutna Hydro Electric Power Plant	24,745.0	25,372.8	9,919.6	20,426.2	80,463.6
Total Energy Entering System	693,933.5	621,886.1	595,192.1	681,270.6	2,592,282.3
Energy Leaving System					
Quartz Creek Substation	0.0	0.4	7.1	7.9	15.3
Daves Creek Substation	14,925.4	14,383.2	14,778.4	15,535.1	59,622.1
Eklutna Substation	66,337.7	63,045.4	29,011.4	39,603.8	197,998.3
Teeland Substation	46,557.6	50,279.7	39,836.4	36,848.5	173,522.2
Plant 2 230 Yard	1,011.0	28.3	193.2	83.9	1,316.4
University Substation Bkr 152	29.1	368.6	385.1	0.0	782.8
Power Plant Station Service Totals	17,054.6	17,205.1	17,662.7	19,587.2	71,509.5
South - Distribution Substation Deliveries	298,369.7	247,280.0	250,559.2	305,148.9	1,101,357.9
North - Distribution Substation Deliveries	236,460.4	215,347.2	225,697.8	249,361.9	926,867.3
Total Energy Leaving System	680,745.5	607,937.8	578,131.3	666,177.2	2,532,991.7
Gross Energy Losses	13,188.0	13,948.4	17,060.8	15,093.4	59,290.6
Less Transformer Losses	1,483.6	1,483.6	1,483.6	1,483.6	5,934.5
Net G&T Losses	11,704.4	12,464.7	15,577.2	13,609.8	53,356.1

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19th Revision Sheet No. 103.4

Chugach Electric Association, Inc.


CALCULATION OF CHUGACH G&T LOSSES
2022 Test Year

Description	Q1-22	Q2-22	Q3-22	Q4-22	Total
Energy Entering System					
Beluga Power Plant	4,697.5	708.7	1,197.4	727.9	7,331.4
IGT Power Plant	0.0	0.0	0.0	0.0	0.0
Fire Island Wind (IGT Bkr 532)	15,915.2	8,404.4	13,262.1	16,086.9	53,668.6
Southcentral Power Project	330,831.4	288,032.7	230,023.1	335,680.3	1,184,567.5
Plant 1	5,354.8	6,831.2	1,221.6	6,698.9	20,106.4
Plant 2	26,820.8	12,805.0	897.8	1,266.7	41,790.3
Plant 2A	236,707.3	210,928.8	206,345.8	210,389.9	864,371.8
Quartz Creek Substation	46,529.3	41,592.1	117,474.3	106,829.8	312,425.4
Teeland Substation	74,645.5	55,412.1	47,251.4	58,267.3	235,576.2
Plant 2 230 Yard	5,077.4	2,203.6	10,946.2	1,102.3	19,329.5
Eklutna Substation	1,518.4	616.0	0.0	3,010.9	5,145.3 D,N
International Substation	0.0	0.0	0.0	0.0	0.0 D,N
Cooper Lake Power Plant	5,976.2	7,441.2	7,888.3	14,030.8	35,336.5
Eklutna Hydro Electric Power Plant	38,325.8	34,438.4	56,671.7	39,930.2	169,366.2
Total Energy Entering System	792,399.7	669,414.2	693,179.6	794,021.7	2,949,015.3
Energy Leaving System					
Quartz Creek Substation	0.0	0.0	0.0	0.0	0.0
Daves Creek Substation	15,329.4	14,991.4	15,154.2	14,851.6	60,326.6
Eklutna Substation	39,355.5	34,623.3	56,125.7	42,413.3	172,517.8 D,N
Teeland Substation	181,250.8	135,624.1	115,606.4	162,177.2	594,658.5
Plant 2 230 Yard	7,045.4	4,796.7	20,122.4	13,368.4	45,332.8
International Substation	80.1	78.2	98.1	105.3	361.8 D,N
Power Plant Station Service Totals	19,395.7	18,385.6	17,998.5	20,481.3	76,261.0
South - Distribution Substation Deliveries	290,974.9	245,546.4	249,133.8	296,665.0	1,082,320.0
North - Distribution Substation Deliveries	230,549.5	208,759.9	207,889.5	232,231.3	879,430.3
Total Energy Leaving System	783,981.3	662,805.5	682,128.7	782,293.4	2,911,208.9
Gross Energy Losses	8,418.4	6,608.7	11,050.9	11,728.3	37,806.3
Less Transformer Losses	1,584.8	1,584.8	1,584.8	1,584.8	6,339.1
Net G&T Losses	6,833.6	5,023.9	9,466.2	10,143.6	31,467.2

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Chugach Electric Association, Inc.

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STATE OF ALASKA
REGULATORY COMMISSION OF ALASKA

CALCULATION OF CHUGACH G&T LOSSES
2021 Test Year ¹

Description	Q1-21	Q2-21	Q3-21	Q4-21	Total
Chugach Retail Distribution Losses					
Retail Receipts at Transmission Substation	534,830.2	462,627.2	476,257.0	554,510.8	2,028,225.2
Less: Chugach House Power	2,042.5	1,493.9	1,404.1	2,015.8	6,956.3
Net Receipts	532,787.7	461,133.3	474,852.9	552,495.0	2,021,268.9
Retail Sales at Delivery	513,997.5	442,128.8	443,024.9	523,782.3	1,922,933.6
Losses	18,790.2	19,004.5	31,828.0	28,712.6	98,335.3
Add: 1/2 House Power	1,021.2	746.9	702.0	1,007.9	3,478.2
Adj. Retail Dist. Losses	19,811.4	19,751.4	32,530.1	29,720.5	101,813.4
At Delivery	3.854%	4.467%	7.343%	5.674%	5.295%
At Transmission Substation	3.718%	4.283%	6.851%	5.379%	5.037%
Adjustment of G&T Losses for House Power					
G&T Deliveries	549,755.6	477,010.4	491,031.7	570,056.1	2,087,853.8
Net G&T Losses	11,704.4	12,464.7	15,577.2	13,609.8	53,356.1
Add: 1/2 House Power	1,021.2	746.9	702.0	1,007.9	3,478.2
Adjusted G&T Losses	12,725.6	13,211.7	16,279.2	14,617.7	56,834.3
At Delivery	2.315%	2.770%	3.315%	2.564%	2.722%
At Generation	2.262%	2.695%	3.209%	2.500%	2.650%

¹ G&T loss factor effective for the allocation of actual costs beginning January 1, 2022.

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19th Revision Sheet No. 103.5

Chugach Electric Association, Inc.



CALCULATION OF CHUGACH G&T LOSSES
2022 Test Year ¹

Description	Q1-22	Q2-22	Q3-22	Q4-22	Total
Chugach Retail Distribution Losses					
Retail Receipts at Transmission Substation	521,524.4	454,306.3	457,023.3	528,896.3	1,961,750.3
Less: Chugach House Power	1,817.3	1,429.6	1,359.8	1,865.9	6,472.6
Net Receipts	519,707.1	452,876.7	455,663.5	527,030.4	1,955,277.7
Retail Sales at Delivery	505,991.2	440,840.7	442,748.6	513,044.1	1,902,624.6
Losses	13,716.0	12,036.0	12,915.0	13,986.2	52,653.1
Add: 1/2 House Power	908.6	714.8	679.9	933.0	3,236.3
Adj. Retail Dist. Losses	14,624.6	12,750.8	13,594.8	14,919.2	55,889.5
At Delivery	2.890%	2.892%	3.071%	2.908%	2.937%
At Transmission Substation	2.814%	2.816%	2.984%	2.831%	2.858%
Adjustment of G&T Losses for House Power					
G&T Deliveries	536,937.8	469,385.9	472,246.7	543,843.7	2,022,414.2
Net G&T Losses	6,833.6	5,023.9	9,466.2	10,143.6	31,467.2
Add: 1/2 House Power	908.6	714.8	679.9	933.0	3,236.3
Adjusted G&T Losses	7,742.2	5,738.7	10,146.0	11,076.5	34,703.6
At Delivery	1.442%	1.223%	2.148%	2.037%	1.716%
At Generation	1.421%	1.208%	2.103%	1.996%	1.687%

¹ G&T loss factor effective for the allocation of actual costs beginning January 1, 2023.

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